Accredited Standards Committee
X3, Information Technology

To: Membership of X3T10

From: Ralph Weber, Secretary X3T10
           John Lohmeyer, Chair X3T10

Subject: Minutes of X3T10 SCSI Working Group Meeting
           Newport Beach, CA -- March 7-8, 1995

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Agenda

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2. Approval of Agenda

3. Attendance and Membership

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   6.5 Determining the status of an immediate command (94-244r1) [Lappin]
   6.6 What should be done with CCS References in SPC? [Tewell]
   6.7 Public Review Comments (if any) on SCC
   6.8 Addition of ASC/ASCQ codes for cleaning cartridges(95-133r1) [Lappin]
   6.9 Distributed SCSI (95-159r0) [Sloan]
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7. Other Topics

8. Meeting Schedule

9. Adjournment

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Results of Meeting

1.   Opening Remarks

John Lohmeyer, the X3T10 Chair, called the meeting to order at 9:00 a.m., Tuesday March 7, 1995. He thanked Skip Jones of QLogic for arranging and hosting the meeting.

As is customary, the people attending introduced themselves and a copy of the attendance list was circulated. Copies of the draft agenda and general information on X3T10 were made available to those attending.

2.   Approval of Agenda

The draft agenda was approved.

3.   Attendance and Membership

Attendance at working group meetings does not count toward minimum attendance requirements for X3T10 membership. Working group meetings are open to any person or organization directly and materially affected by X3T10's scope of work.

The attendance list was lost during the course of the meeting. Another was distributed Wednesday afternoon. As a result, the attendance list in these minutes most likely is incomplete. The following people attended the meeting:

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         Name             S        Organization        Electronic Mail Address
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Mr. Norm Harris           P   Adaptec, Inc.            nharris@eng.adaptec.com
Mr. Wally Bridgewater     V   Adaptec, Inc.
Mr. Edward Fong           P   Amdahl Corp.             esf10@amail.amdahl.com
Mr. Clifford E. Strang    P   BusLogic                 skip@buslogic.com
Jr.
Mr. Peter Johansson       P   Congruent Software, Inc. pjohansson@aol.com
Mr. Michael Alexenko      A#  Conner Peripherals       Mike.Alexenko@conner.com
Mr. Charles Monia         P   Digital Equipment Corp.  monia@shr.dec.com
Mr. William Dallas        A#  Digital Equipment Corp.  dallas@wasted.enet.dec.co
                                                       m
Mr. Kenneth J. Hallam     A   ENDL                     3450626@mcimail.com
Mr. Ralph O. Weber        A#  ENDL Associate           roweber@acm.com
Mr. Edward Lappin         P   Exabyte Corp.            tedl@exabyte.com
Mr. Mike Chenery          A#  Fujitsu                  mchenery@fcpa.fujitsu.com
Mr. George Penokie        P   IBM Corp.                gop@rchvmp3.vnet.ibm.com
Mr. Paul Hodges           V   IBM Corp.
Mr. Mike Brewer           V   IBM Corp.
Mr. Lansing Sloan         0   Lawrence Livermore Nat'l ljsloan@llnl.gov
                              Lab
Mr. Pete McLean           P   Maxtor Corp.             pete_mclean@maxtor.com
Mr. Peter Gossler         0   NSM Jukebox GmbH         73503.3467@compuserve.com
Mr. Stephen F. Heil       0   Panasonic Technologies,  sfh@research.panasonic.co
                              Inc                      m
Mr. James McGrath         P   Quantum Corp.            JMCGRATH@QNTM.COM
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Mr. Edward A. Gardner	A	Quantum Corp.	gardner@acm.org
Mr. Gene Milligan	P	Seagate Technology	Gene_Milligan@notes.seagate.com
Mr. Gerald Houlder	A	Seagate Technology	Gerry_Houlder@notes.seagate.com
Mr. Erich Oetting	P	Storage Technology Corp.	Erich_Oetting@Stortek.com
Mr. Robert N. Snively	P	Sun Microsystems Computer Co	bob.snively@eng.sun.com
Mr. Jim Kahn		Sun Microsystems, Inc.	
Mr. John Lohmeyer	P	Symbios Logic Inc.	john.lohmeyer@hmpd.com
Mr. Rod DeKoning	V	Symbios Logic Inc.	rod.dekoning@ks.hmpd.com
Mr. Tracy Spitler	V	Symbios Logic Inc.	tracy.spitler@hmpd.com
Mr. David Steele	V	Symbios Logic Inc.	david.steele@hmpd.com
Mr. Pete Tobias	A	Tandem Computers	tobias_pete@tandem.com
Mr. Tak Asami	A	Western Digital Corporation	asami@dt.wdc.com

32 People Present

Status Key: P   -   Principal
              A,A# -   Alternate
              O   -   Observer
              L   -   Liaison
              V   -   Visitor

4.   Physical Topics

4.1   Next-Generation SPI Proposals [Aloisi, Ham, Harris, Lohmeyer, Penman, McGrath]

Bill Ham presented a summary of the five projects proposed by the Next-Generation SPI ad hoc meeting. The proposal can be found in the minutes from that meeting, 95-172r0. Paul Aloisi gave a brief presentation describing the proposed projects.

4.2   Fast-20 Minimum Negation Current Issue (95-139r2) [Lohmeyer]

John Lohmeyer described the Fast-20 minimum negation proposal, recently added to the Fast-20 document in revision 5. He noted that the proposal results from a lengthy discussion on the SCSI Reflector.

Tracy Spitler described some active negation trace data gather in the Symbios labs. The bottom line was that not much active negation current is required. Tracy, Dave Steele, Bill Ham and several others agreed that lower negation currents are acceptable (maybe even desirable).

Wally Bridgewater (Adaptec) expressed a concern that without enough active negation the pulse width will not be acceptable. Tracy further described the test cases that he used. Gene Milligan noted that other problems can occur based on non-Fast-20 operation. This led to a discussion of instances where the user leaves a terminator off the end of the cable. Bill Ham noted that the reflected pulses never have enough energy to latch a receiver.

After a lengthy discussion of why using lower active negation currents might cause problems, several people noted that the proposed revision does not prohibit use of higher active negation currents. If a manufacturer plans to work in a hostile environment (usually caused by devices that fail to meet specified device capacitance), they can use higher active negation currents.

John described the current procedural state of Fast-20. He expressed a hope that the plenary meeting will forward revision 5 of the Fast-20 document to first public review (including the revision for active negation currents).

Wally next expressed a desire to lower the threshold from 1.9 to 1.8 or 1.7. This was generally felt to be unnecessary, and undesirable because of its effects on the hystersis. The discussion of this problem resulted in a recommendation that one sentence be removed from clause 6.1.3 of the Fast-20 document.

The group began discussing the various known issues/questions regarding the Fast-20 document. Several questions were raised regarding the degree to which the single-ended test circuit properly represents "real cable."

The 22 comments sent to the SCSI Reflector by Kevin Gingerich were reviewed. Questions were raised regarding whether the comments should be considered at this time. The group agreed to discuss the technical comments. John noted that many of the comments (which were written against revision 3) have been addressed by revision 5.

As a result of the comments review a few changes were suggested. In clauses 5.1 and 5.2, a shall was changed to a should (previously agreed to in January but omitted) and a pointer to annex C was added. Words clarifying the measurement of the ground offset voltage were added at the end of clause 5.1. A couple of editorial corrections were made in clause 6.2.1.

Of the Kevin Gingerich comments, comments 2, 3, 4, 5, 6, 15, and 16 resulted in some type of change in revision 5 of the Fast-20 document.

At the request of Wally Bridgewater, references to annex B were added to the first paragraph in clause 6.1.3. Also, pointers to annex B also were added table 1.

4.3   Public Review Comments (if any) on SPI

John announced that no public review comments have been received to date on SPI. The second public review for SPI closes April 4.

4.3.1   Editorial Correction to SPI Rev 15 in Annex B [Johansson]

Peter Johansson noted that the sentence "All devices assert the DB(6) signal" should be added to annex B (SCAM) of SPI.

Peter noted that a sentence in the SCAM configuration requirements list currently reading "Only SCAM initiators are permitted on the bus" should be replaced by "All SCSI initiators on the bus shall be SCAM initiators."

There was a discussion of how the necessary changes must incorporated in the document, due to the current second public review status of SPI.

5.   Protocol Topics

5.1   Addressability of TARGET RESET task management function (94-236r1) [Snively]

Bob Snively presented the March 3 revision of his proposal for allowing resets of a single logical unit. The relationship of logical unit reset and logical unit hierarchies was discussed. George Penokie was called on to comment on the relationship of logical unit resets and lower level devices under the SCSI-3 Controller Command document.

Concerns were raised about the redefinition of the SIP BUS DEVICE RESET message. Under the proposal, a BDR message that follows an IDENTIFY message would reset the logical unit. But, under SCSI-2, all logical units will be reset. The use of new SIP messages was proposed. After a long discussion, Bob took a straw poll. 8

people favored a new message. 2 people favored adding functionality to the BUS DEVICE RESET message. Bob asked for time at the plenary to discuss and vote on this question.

Further problems with old and new devices were debated. As a result, Bob took a note to add a SIP discussion of how what the initiator thinks is a logical unit reset might get interpreted as a device reset by an older target.

The handling of the BUS DEVICE RESET OTHER PORT message was raised as an issue. Bob agreed to enhance the proposal to cover BUS DEVICE RESET OTHER PORT. Also, Bob agreed to review several editorial corrections off-line.

5.2   SIP Review [Penman]

Duncan Penman lead a review of revision 4a of the SCSI-3 Interlocked Protocol (SIP) document. He noted that revision 4a is the first new revision of SIP in about eighteen months. Gene asked about the work done to date. Gene and Duncan agreed that the SIP had been SAMinized and the Fast-20 negotiation has been added. Very few other changes have been made. Duncan agreed to find the "master list" of change documents and match it to SIP.

Duncan asked for guidance on the following topics. Should SIP describe: bus phases, nexus definitions, or SCAM? Should SIP give implementation guidance for multi-initiator behavior or queuing?

Duncan's questions produced a lengthy discussion of the relationship between SIP, SPI, SAM, and the commands documents.

5.3   Public Review Comments on SAM

Charles began the SAM comments review with the following, slightly edited, quote from Samuel Johnson:

"It is the fate of those who dwell at the lower employments of life, to be rather driven by fear of evil, than attracted by the prospect of good; to be exposed to censure, without hope of praise; to be disgraced by miscarriage, or punished for neglect, where success would have been without applause, and diligence without reward. Among these unhappy mortals is the *technical editor*." The original quote contained "writer of dictionaries" where Charles had written "technical editor."

The group attempted to reconstruct information on public review comments received so far.

A comment from IBM and a collection of comments from LLNL were mentioned. Lansing Sloan describe an additional eight pages of comments that he will be sending to Lynn Barra soon.

Charles and the group reviewed the 18 specific comments already sent by Lansing Sloan. Comments 4, 6, 8, 15, 16, and 17 were accepted. Comments 2 and 3 were deferred for further editorial consideration. Comments 3 and 5 were deferred for consideration as part of SAM-2. Comments 1, 7, 9, 10, 11, 12, 14, and 18 were rejected.

In the set of comments that Lansing has not yet sent in, comments 19, 22, 23, 24, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 45, 46, 47, 50, 51, 55, 56, 57, 58, 60, 61, 63, 67, 68, 69, 70, and 72 were considered editorial and accepted. Comments 20, 21, 25, 32, 40, 48, 49, 52, 53, 54, 59, 62, 64, 65, 71, 73, and 74 were rejected. Comments 75 and 76 were rejected because IBM has asked that Annex A be removed. Technical comment 66 was rejected because the group felt that all the relevant cases are already covered by item b in the existing SAM list.

Charles proposed that IBM comment one be accepted and that Annex A be removed from the SAM. The IBM comments can be found in document 95-107. The result of the group review of the IBM comments was that all eleven comments were accepted. It was noted that IBM comment eleven may be deferred to SAM-2. In addition, a few changes were made in comment eleven.

5.4   Public Review Comments on FCP

The group attempted to reconstruct information on public review comments received so far.

Bob noted that the Hewlett Packard public review comment will deeply affect the FCP technology. Otherwise, it was thought that most of the comments are not difficult to address. The latter category included comments from IBM and Unisys.

Bob reviewed the IBM and Unisys public review comments (documents X3/95-0168-X and X3T10/95-124r0). Bob declared all 13 IBM public review comments to be editorial (in his opinion) and accepted for inclusion in the revised FCP document.

The Unisys comment proved more difficult. Unisys essentially is requesting that the Disconnect/Reconnect mode page EMDP applies to FCP in an equivalent way to that found in SCSI-2. Bob proposed that the Unisys request be accepted and the group concurred.

Bob then described a public review comment that he anticipates getting from Kurt Chan (HP). The Fibre Channel Class 3 users have determined that the task management functions should have a response message.

Lansing Sloan mentioned that he sees differences between FCP and the latest (public review) version of SAM. Bob agreed to examine the problem, but strongly advised Lansing to submit a fully detailed review comment.

Mechanisms for prompt resolution of the review comments were discussed.

5.5   Public Review Comments (if any) on SBP

No comments had been received as yet.

6.   Command Set Topics

6.1   Proposed INQUIRY Command Enhancements (94-188r8) [Weber]

Ralph reviewed the changes requested by the January Working Group. Ed Gardner suggested an editorial change. Otherwise, no objections were raised to voting on the documents, as revised, at the plenary.

6.2   Multiple Port Operations (94-233) [Snively]

Bob apologized to the group for not having made any progress on this topic. He promised to prepare something for the mailing.

6.3   Attached Medium Changer Model (95-103r1) [Weber]

Ralph reviewed work on this proposal to date. One editorial correction was noted. Erich Oetting asked that the READ ELEMENT STATUS be made mandatory for medium-changer devices. Giles suggested that the attached versions of the MOVE MEDIUM command and READ ELEMENT STATUS commands be optional for medium changer devices. The group did not object to voting on the document, as revised, at the plenary.

6.4   Conflict Between Read Long and the Read-write Error Recovery Page [Milligan]

Gene Milligan reported that, to the best of his knowledge, the required changes have been made in the most recent revision of the SCSI-3 Block Commands (SBC) document. He indicated that no further work is required on this topic.

6.5   Determining the status of an immediate command (94-244r1) [Lappin]

Ted reviewed the progress of his proposals to allow returning progress indications on commands other than FORMAT command. The text of the proposed ASC/ASCQ description was revised slightly.

George Penokie reminded the group that the reason for allowing progress indications on NO SENSE sense keys concerns RAID operations.

There were no objections to considering this proposal, as revised, at the plenary.

6.6   What should be done with CCS References in SPC? [Tewell]

Rick Tewell was not present and the topic was deferred to the next Working Group meeting.

6.7   Public Review Comments (if any) on SCC

George noted that the public review period has not started yet. It starts on March 17. However, he is aware of a problem with persistent configurations. George proposed a specific wording change that he claims would be editorial. Gary Stephens asked about the point in time when a configuration change becomes irreversible. George said that delivery of completion status is that point in time.

6.8   Addition of ASC/ASCQ codes for cleaning cartridges(95-133r1) [Lappin]

The group requested minor editorial corrections to the document. Otherwise, no objections were raised to voting on the revised document at the plenary.

6.9   Distributed SCSI (95-159r0) [Sloan]

Lansing Sloan presented a follow-up discussion of the LLNL Distributed file server concept. A key feature of the concept is that SCSI commands and SCSI data movements are transacted over different data-paths (networks). Lansing described a security problem discovered in the transaction model proposed in January. He then proposed three possible solutions for the problem.

The security hackers in the group described methods for breaking every proposed solution. No security mechanism was hacker-proof.

6.10   NormACA Definition in SPC [Weber]

George Penokie, Bob Snively, Charles Monia, and Ralph developed an acceptable wording for the definition of the NormACA bit in the Standard INQUIRY Data. Ralph was authorized to change the SPC based on the Working Group discussion.

7.   Other Topics

No other topics were discussed.

8.   Meeting Schedule

The next meeting of X3T10 SCSI Working Group will be May 9-10, 1995, in Harrisburg, PA at the Sheraton Inn Harrisburg (717-561-2800), hosted by AMP Incorporated.

9.   Adjournment

The meeting was adjourned at 5:45 p.m. on Wednesday March 8, 1995.